Gallogly College of Engineering

107 Carson Engineering Center
202 W. Boyd
Norman, OK 73019-1021
Phone: (405) 325-2621
FAX: (405) 325-7508
engineering@ou.edu
coe.ou.edu

Administrative Officers
John Antonio, Ph.D., Interim Dean of the College of Engineering
Randa Shehab, Ph.D., Associate Dean for Academic Affairs
Theresa M. Marks, Assistant Dean for Academic Student Services

General Information
Instruction in professional engineering was first given at the University of Oklahoma in 1899 when a course in surveying was offered. The following year, 1900–01, the first two years of engineering were presented. In 1902–03 a curriculum in civil engineering was established, and a School of Mines was organized. At the same time, courses in electrical and mechanical engineering were listed. In 1904 the courses in engineering were organized as a School of Applied Science. In 1909 the School of Mines and the School of Applied Science were joined and reorganized as the College of Engineering. The first professional degrees were conferred in 1909.

The college has grown substantially since that time. It now offers degrees in 11 undergraduate engineering fields, as well as computer science and environmental science. The student body includes approximately 3,600 undergraduate students and 600 graduate students. Its facilities fill eight major buildings with research facilities in portions of six other buildings.

In recent years, the college has been a major contributor to the philosophy of modern engineering education. It was one of the first to develop and adopt the “core” type engineering curricula now prevalent throughout the country. It was also one of the first to use the new approach to engineering laboratory work, wherein the student’s creativity is developed through the planning and carrying out of the experiment as an exercise in engineering analysis and design. Thus, the curricula in engineering are constantly being updated and modified to meet the needs of industry and future graduate work, increase the versatility of the student, and prolong the usefulness of the material taught.

The college is organized into schools and departments with the responsibility for administering the undergraduate and graduate programs of study, or curricula, as listed in the later pages of this catalog. The professional subjects in these curricula are supported by courses from other colleges of the University. Upon satisfactory completion of one of the curricula, a student will be recommended for a degree, in most cases qualified by the name of the engineering field pursued.

Faculty
The University of Oklahoma celebrated its centennial of engineering education in the 2009-10 academic year. As the Gallogly College of Engineering completes its first hundred years and looks forward to the next, the faculty is dedicated to excellence in carrying out the University mission of teaching, research and service. The faculty are drawn from many of the nation’s leading universities, including University of California, Georgia Tech, MIT, Rice, and Yale, to name a few. Over one in four faculty members in the college hold an endowed chair or professorship, and one in five hold Presidential Professorships. Four hold University of Oklahoma David Ross Boyd Professorships and eight hold George Lynn Cross Research Professorships. Many of them are recognized as Fellows of national professional societies. In addition, several of the faculty members advise student organizations, including design teams that compete at the championship level in national and international competitions.

Computing
The OU Network consists of a high-speed backbone with connections to faculty, staff, laboratory, and classroom computers. Wireless technology extends the network to cover the engineering buildings, outside areas, laboratories, and classrooms. For more detailed information, visit the OU Information Technology Support page.

Accreditation of Programs
The following programs are accredited by the Engineering Accreditation Commission (EAC) of ABET: Aerospace Engineering, Architectural Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Physics, Environmental Engineering, Industrial & Systems Engineering, and Mechanical Engineering. The Computer Science program is accredited by the Computing Accreditation Commission (CAC) of ABET.

Programs Offered
- College of Engineering Administated Programs
  - Engineering Leadership, Undergraduate Certificate
    - Course Lists
- School of Aerospace and Mechanical Engineering
  - Aerospace Engineering, B.S.
  - Mechanical Engineering (Standard), B.S.
  - Mechanical Engineering (Premedical Option), B.S.
  - Aerospace Engineering, B.S./M.S.
  - Mechanical Engineering (Standard), B.S./M.S.
  - Aerospace Engineering, M.S.
  - Mechanical Engineering, M.S.
  - Aerospace Engineering, Ph.D.
  - Mechanical Engineering, Ph.D.
  - Cellular and Behavioral Neurobiology: Aerospace and Mechanical Engineering, Ph.D.
- Stephenson School of Biomedical Engineering
  - Biomedical Engineering, B.S.
  - Biomedical Engineering, B.S./M.S.
  - Biomedical Engineering, M.S.
  - Biomedical Engineering, Ph.D.
School of Chemical, Biological and Materials Engineering
- Chemical Engineering (Standard), B.S.
- Chemical Engineering (Biotechnology Option), B.S.
- Chemical Engineering (Pre-Medical/Biomedical Engineering), B.S.
- Chemical Engineering (Standard), B.S./M.S.
- Chemical Engineering (Biotechnology), B.S./Biomedical Engineering, M.S.
- Chemical Engineering (Pre-Medical/Biomedical Engineering), B.S./Biomedical Engineering, M.S.
- Chemical Engineering, M.S.
- Chemical Engineering, Ph.D.

School of Civil Engineering and Environmental Science
- Architectural Engineering, B.S.
- Civil Engineering, B.S.
- Environmental Engineering, B.S.
- Environmental Science, B.S.
- Environmental Science, Minor
- Water and Sanitation for Health and Sustainable Development, Minor
- Architectural Engineering, B.S./Civil Engineering, M.S.
- Civil Engineering, B.S./M.S.
- Environmental Engineering, B.S./M.S.
- Environmental Science, B.S./M.E.S.
- Civil Engineering, M.S.
- Environmental Engineering, M.S.
- Environmental Science, M.E.S.
- Environmental Science: Hydrology and Water Security Online, M.E.S.
  - Departmental course lists
- Civil Engineering, Ph.D.
- Environmental Engineering, Ph.D.
- Environmental Science, Ph.D.

School of Computer Science
- Computer Science, B.S.
- Computer Science, Minor
- Computational Technology, Minor
- Computer Science, B.S./M.S.
- Computer Science, M.S.
  - Computer Science, M.S. Approved Course List
  - Computer Science, Ph.D.

Program in Data Science and Analytics
- Data Science and Analytics, M.S.
- Data Science and Analytics, Graduate Certificate

School of Electrical and Computer Engineering
- Computer Engineering, B.S.
- Electrical Engineering, B.S.
- Electrical and Computer Engineering, Minor
- Computer Engineering, B.S./Computer Science, M.S.
- Computer Engineering, B.S./Electrical and Computer Engineering, M.S.
- Electrical Engineering, B.S./Electrical and Computer Engineering, M.S.
- Electrical and Computer Engineering, M.S.
- Electrical and Computer Engineering, Ph.D.

Department of Engineering
- Engineering, M.S.
- Engineering, Ph.D.
- Engineering Education, Ph.D.

Program in Engineering Physics
- Engineering Physics, B.S.
- Engineering Physics, M.S.
- Engineering Physics, Ph.D.

School of Industrial and Systems Engineering
- Industrial and Systems Engineering, B.S.
- Industrial and Systems Engineering: Analytics, B.S.
- Industrial and Systems Engineering: Pre-Medicine, B.S.
- Industrial and Systems Engineering, B.S./M.S.
- Industrial and Systems Engineering: Analytics, B.S./M.S.
- Industrial and Systems Engineering: Analytics, B.S./Data Science and Analytics, M.S.
- Industrial and Systems Engineering, B.S./Data Science and Analytics, M.S.
- Industrial and Systems Engineering, B.S./M.B.A.
- Industrial and Systems Engineering, M.S.
- Industrial and Systems Engineering, Ph.D.

Program in Telecommunications
- Telecommunications Engineering: Non-thesis, M.S.
- Telecommunications Engineering: Thesis, M.S.

Programs & Facilities
The main Gallogly College of Engineering complex is located on the northeast corner of the University's Norman campus. The Carson Engineering Center includes classrooms and laboratories for civil, architectural, environmental engineering and environmental science, as well as industrial and systems engineering. Felgar Hall houses laboratories and facilities for aerospace and mechanical engineering and the Williams Student Services Center (WSSC). Sarkeys Energy Center houses chemical engineering. Devon Energy Hall has classrooms, team and forum rooms, and laboratories for computer science, computer engineering, and electrical engineering. Gallogly Hall houses the thirty-nine year award winning Diversity and Inclusion program as well as the Stephenson School of Biomedical Engineering. The college also offers two programs that include engineering physics and data science and analytics. The Exxon-Mobil Lawrence G. Rawl Engineering Practice Facility is the home for engineering outreach, and houses over twenty-eight competition teams. Also included in the REPF is the Holmes Leadership Program for Engineers and Scientists, Women in Engineering program, Sooner Engineering Education Center, as well as more than fifty student organizations and clubs. Every year, thousands of K-12 students visit the REPF to observe engineering students design, build and test their projects. The University’s south and north campuses house additional offices and labs in support of the college’s research enterprise and makes OU Engineering one of the finest engineering education complexes in the Southwest.

The other laboratories of the college are well-equipped to demonstrate the principles of courses offered and are described in other sections of this catalog. Through these laboratories and the actual use of apparatus, instruments, and equipment, a student is able to make practical applications of the theories and principles which the student has learned in the classroom. Students of the college are active in fieldwork. In addition, laboratories and other facilities of the college are
used by students and faculty members in the classroom and for research and experiments which add value to the global economy.

Undergraduate Study

Undergraduate Advising at Williams Student Services Center

Whether you are a prospective, first-time, continuing or graduating student, the Williams Student Services Center serves as the “hub” for providing academic and curricular guidance. See our advising team for basic information about academic programs and advising, scholarships, student groups, organizations, diversity and inclusion, tutoring, mentoring, and graduation. Advisors are available to answer questions and provide guidance regarding courses, academic performance, scholastic requirements and transfer equivalencies.

The Gallogly College of Engineering provides students the support of a faculty and college academic advisor related to their discipline. Students risk delaying their graduation if they do not make a timely selection of a major. Students are advised each semester prior to enrollment.

All incoming engineering freshmen are advised during the University’s Summer Enrollment and Orientation Program coordinated by University College and the OU Scholars Program. Freshmen will continue to be advised by a UC academic advisor until the student has completed 24 credits hours in residence at OU and has maintained at least a minimum 2.0 GPA.

International & Global Opportunities (IGO)

Educational and co-curricular experiences are offered through the International & Global Opportunities (IGO) program. This program includes engineering specific coursework, opportunities for practice related service learning, internships and research. IGO programs are open to current OU students in collaboration with the University’s Education Abroad Office and affiliate partner universities.

Engineering Laptop Policy

Visit the Gallogly College of Engineering’s webpage to learn more about the college’s laptop policy.

Admission to the Gallogly College of Engineering

The OU Gallogly College of Engineering uses the same admissions policies for accepting new students into its programs as that of the institution, with the exception of Aerospace Engineering and Mechanical Engineering applicants.

Freshman Admission

For more information regarding freshman admission, visit the OU Admissions webpage.

Transfer Admissions

For more information regarding transfer engineering admission, visit the OU Admissions webpage.

Resident transfer: 2.5 combined GPA for students with less than 60 hours
- or 2.0 for students with 60 or more hours earned.

Non-resident transfer: The admission of non-resident transfer students is more restrictive for GCoE programs, and is administered on the college’s behalf by the Office of Admissions and is as follows: 3.0 combined retention GPA regardless of the number of hours earned.

The Office of Admissions conducts all initial assessment of transfer coursework. Transfer students who wish to apply un-equated transfer courses towards degree completion are urged to meet with one of the college’s academic advisors.

Major specific transfer coursework will be reviewed by the faculty in the specific discipline for evaluation. For more information, visit the University’s Transfer Equivalency Database.

AME Course Admissions:

For AME transfer students matriculating into the Oklahoma State System Fall 2015 or later: 3.0 combined GPA in 24 or more credit hours, C minimum in the following courses with 3.0 combined GPA:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1914</td>
<td>Differential and Integral Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2924</td>
<td>Differential and Integral Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 2514</td>
<td>General Physics for Engineering and Science Majors</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1315</td>
<td>General Chemistry</td>
<td>5</td>
</tr>
</tbody>
</table>

Scholastic Requirements & Equivalencies

Academic Standards

Students in the Gallogly College of Engineering must meet the following academic standards:

- A minimum grade of C in each course required in the curriculum.
- Both an OU retention and a combined retention grade point average of 2.00 or higher.¹
- A 2.00 minimum combined retention average for all attempted courses presented to satisfy curriculum requirements. Curriculum requirements include every course on the selected degree requirement sheet.¹
- A 2.00 minimum OU retention average for all courses attempted at the University of Oklahoma used to satisfy curriculum requirements.¹
- A 2.00 minimum OU and combined retention average in all courses taken in the major field. Major field is defined by the degree field selected. The major field is defined by the degree program selected.¹
- No more than two unsuccessful attempts (D or less) in a course required in the curriculum.

¹Note: Specific accelerated degree programs within the Gallogly College of Engineering may require a higher minimum grade point average. Please contact Williams Student Services Center (WSSC) 112 Felgar Hall for specific requirements.

For purposes of graduation and retention, these grade point averages may be affected by academic forgiveness policies. Students should consult the “Admissions, Enrollment and Student Financial Services” section of this catalog for more information.

Students who do not meet these standards will be notified by the Director of Advising and guided to meet with their assigned college advisor for support.

The University of Oklahoma utilizes a 4.0 or A=4, B=3, C=2, D=1, F=0 system. The Gallogly College of Engineering requires:
• a minimum grade of C in any course applied toward degree completion
• P/NP coursework does not count toward degree completion
• S grades are accepted toward degree completion as obtained by Advanced Placement (AP), Departmental, higher level IBC, and CLEP exams

**Time Limitations on Coursework**
A student may elect to graduate under the requirements for an undergraduate degree plan in effect at the time of their first enrollment in the state system, provided that they complete the work for a degree within a maximum of six years, which is reflected in the degree check. If the work for a degree covers a period longer than that specified by the college, the college will determine the degree plan to be in effect for that student’s graduation.

A student whose initial enrollment in the state system is during the summer session will be subject to the University of Oklahoma catalog in effect for the year following that summer.

Credit in the student’s major field or area of concentration that is more than 10 years old may not be applied toward a bachelor’s degree unless it is validated by the major department, or by the departments in the student’s area of concentration. (The term “area of concentration” is included in addition to “major field” to allow for those cases in which the equivalent of a major may be earned by a combination of work in several departments.)

**Honor Roll**
To be eligible for the Dean’s Honor Roll, a full-time undergraduate student must earn at least 12 or more hours and attain a grade point average of 3.00 or higher during a regular fall or spring semester. Part-time students may qualify for the honor roll by earning at least six but less than 12 hours and attaining a grade point average of 3.00 or higher, provided they have no Ws for that semester. There is no college honor roll during the summer session or during intersessions, and hours and grades earned during these sessions are not included in any way in determining eligibility for inclusion on regular semester honor rolls.

**State-Mandated Articulation Agreements that Impact Engineering Programs**
To facilitate the transfer of students within Oklahoma’s state system of higher education, the state Board of Regents created the Oklahoma State Regents for Higher Education Course Equivalency Matrix. The Regents established a policy that Freshman- and Sophomore-level general education requirements are deemed satisfied for students who complete a two-year Associates of Arts or Associates of Science degree from an Oklahoma public college, and who transfer to a four-year university.

For these reasons, general education coursework readily transfers from Oklahoma colleges into OU. Additionally, if the student has completed the Associates of Arts or Associates of Science, and they earned a D in one of the general education courses used to complete that degree, the GCoE will accept the course toward degree completion unless it is a direct prerequisite for an engineering course.

**NONCOLLEGIATE LEARNING EXPERIENCES**
For more information, visit the Academic Records and Transcripts webpage.

---

**Enrollment & Major Declaration**

### Enrollment Limitations

#### School of Aerospace and Mechanical Engineering
Admission to the AME course program is **required prior** to enrolling in any AME courses for the engineering major.

#### Enrollment into AME Courses
Students entering college in the Oklahoma State System of Higher Education prior to summer 2015 are required to earn a 2.80 overall GPA and complete the requisite courses listed in the first and second year on the degree sheet in order to advance into upper-division AME coursework.

Students entering college in the Oklahoma State System of Higher Education summer 2015 or after are required to accrue at least 24 credits with an overall retention GPA of 3.0 and successfully complete the following with a 3.0 overall retention GPA in these specific courses, with no grade less than C:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1914</td>
<td>Differential and Integral Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 1823</td>
<td>Calculus and Analytic Geometry I</td>
<td></td>
</tr>
<tr>
<td>MATH 2924</td>
<td>Differential and Integral Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 2423</td>
<td>Calculus and Analytic Geometry II</td>
<td></td>
</tr>
<tr>
<td>PHYS 2514</td>
<td>General Physics for Engineering and Science Majors</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1315</td>
<td>General Chemistry</td>
<td>5</td>
</tr>
</tbody>
</table>

#### Pass/No Pass Course Enrollments

Pass/No Pass Course Enrollments may not be used to satisfy Gallogly College of Engineering course requirements. Engineering students may not proceed in their major courses until they have achieved a minimum grade of C in all prerequisites. All required courses listed on the official University of Oklahoma degree checksheet (p. 1) for any engineering major must be completed with a grade of C or better.

#### Minimum Grade Requirement/Course Repeats

Students may take a course in their curriculum only three times (this includes I, AU, W, AW, D, F). If the course is taken unsuccessfully three times and is a course required in all curricula in the College of Engineering, the student will receive an Enrollment Stop from the Gallogly College of Engineering (Note: The first W, I AU, or AW is not counted in the “three attempts” rule). If the course is taken unsuccessfully three times and is required only in the major, the possibility of a student continuing in the Gallogly College of Engineering in a different major will be determined on an individual basis. When courses are repeated, the grade of the last attempt is the grade of record.

#### Enrollment in Upper-division Courses

Enrollment in upper-division Gallogly College of Engineering courses, except any courses specifically exempted in the General Catalog or Class Schedule, is restricted to students who are admitted to the Gallogly College of Engineering and in some cases to those admitted to a specific degree program, have completed the necessary grade and course prerequisites, and are advised into the classes by their engineering faculty or staff advisor. Qualified students from outside the Gallogly College of Engineering are welcome in advanced courses if they have completed the necessary grade and course prerequisites, and are encouraged to explore specific interests with the schools and instructors involved. Approval must be obtained from the professor teaching the
The student must satisfy the following requirements:

**Within the first 10 weeks of the semester, or after final grades are posted.**

Approved changes of major requests are only processed in their current major until they are adequately prepared for the course and completed courses. If the student lacks necessary preparation to switch to an engineering program must meet with an academic advisor or who are pursuing a major in another college on campus but wish to change of major within engineering, or who are pursuing a major in another college on campus but wish to switch to an engineering program must meet with an academic advisor in WSSC to change majors. The advisor will assess the student's GPA and completed courses. If the student lacks necessary preparation to begin coursework in the major, the student might be advised to remain in their current major until they are adequately prepared for the course curriculum. Approved changes of major requests are only processed within the first 10 weeks of the semester, or after final grades are posted. In accordance with State Regents' requirements, students are assigned to the degree program that was current at the time they entered the Oklahoma State System of Higher Education.

### Academic Appeals

The Gallogly College of Engineering has established an Academic Appeals Panel to hear grade appeals and academic misconduct cases. To obtain the procedures to be followed, a student should contact the Dean's office in 107 Carson Engineering Center, and refer to Title 14 of the Student Code.

### Credit Hour Load

Limits on the number of credit hours a student may enroll in each semester without special permission can be obtained from the OU Enrollment Services Office, Buchanan Hall room 230.

### Change of Major Requests

Students interested in pursuing a change of major within engineering, or who are pursuing a major in another college on campus but wish to switch to an engineering program must meet with an academic advisor in WSSC to change majors. The advisor will assess the student's GPA and completed courses. If the student lacks necessary preparation to begin coursework in the major, the student might be advised to remain in their current major until they are adequately prepared for the course curriculum. Approved changes of major requests are only processed within the first 10 weeks of the semester, or after final grades are posted. In accordance with State Regents' requirements, students are assigned to the degree program that was current at the time they entered the Oklahoma State System of Higher Education.

### Graduation Requirements

The student must satisfy the following requirements:

- **Curricular Courses**: complete all prescribed curricular courses or equivalent courses as approved by the faculty with a minimum grade of C in each course.
  - Students graduating from a program accredited by the Engineering Accreditation Commission of ABET must complete 37.5% or 48 hours of engineering and 25% or 32 hours of combined mathematics (at the calculus level or above), physics, chemistry, or other science coursework.
  - Students graduating from a program accredited by the Computing Accreditation Commission of ABET must complete a minimum of 40 hours in computing, 15 hours of mathematics and 30 hours of combined mathematics and science coursework with some exposure to laboratory work.

- **Two-year College Transfer Credits**: a minimum of 60 semester hours must be earned in a senior college or four-year school for a baccalaureate degree.

- **Degree Requirements**: fulfill all requirements listed on the official degree checksheet (p. 1). Gallogly College of Engineering academic advisors in the Williams Student Services Center (WSSC) clear undergraduate degrees and encourage consultation remaining degree requirements. However, responsibility for meeting graduation requirements lies with the student.
  - Be in good academic standing with the college and the University.
  - Make application for the degree by the deadline date for the semester in which the student plans to graduate.
  - To ensure that the above conditions will be met, students are encouraged to request a degree check by completing the Graduation Check form in the Williams Student Services Center (WSSC). This action should be taken at least two semesters before the student expects to graduate. The student can access their degree audit at any time online through Degree Navigator.

- **Residence Requirements** — to be recommended for a degree, a candidate must have:
  - spent two semesters or the equivalent in residence, with at least one semester enrolled as a College of Engineering student;
  - completed at OU 36 of the hours listed in the junior and senior years on their curriculum checksheet, 24 of these 36 hours must be in the major field;
  - fulfilled the grade and grade point requirements of the college and school

  **NOTE**: Academic credit from any division of the University of Oklahoma — Norman campus, OU Health Sciences Center, OU-Tulsa, or Continuing Education — is considered resident credit at the University of Oklahoma. Grades and hours earned at any of these divisions are included in the OU retention and cumulative grade point averages for purposes of determining completion of degree requirements.

- **Three categories of degrees are offered in the Gallogly College of Engineering as follows:**
  - **Bachelor of Science**: the Gallogly College of Engineering is organized into departments and schools. The degree of Bachelor of Science is qualified by the name of the engineering field pursued and is conferred upon graduates of the college.
  - **Distinction**: the college may recommend that the degree With Distinction be conferred on students who have a combined cumulative grade point average of 3.40 and With Special Distinction on students who have a combined cumulative grade point average of 3.70.
  - **Honors**: the Honors College may recommend the degree cum Laude, Magna cum Laude or Summa cum Laude. Special requirements, in addition to the regular requirements for graduation, are approved by the Honors College.

Degrees are formally conferred at spring commencement and convocation, and fall convocation exercises. However, degrees are also awarded in absentia at the end of summer session. All diplomas are mailed to students following the official graduation date. The degree and date of the diploma are entered on the student's permanent academic record. The date of graduation is the last day of the semester or summer session in which all requirements for the degree are completed. When a student completes all requirements for a degree, other than at the close
of a semester or summer session, the Office of Academic Records, upon request, will issue a certified statement that the student is eligible for the degree as of the date when the requirements for the degree were completed.

Graduate Study
Refer to the Graduate tabs within each of the Gallogly College of Engineering academic units’ pages of this catalog for information concerning graduate work.

- School of Aerospace and Mechanical Engineering
- School of Biomedical Engineering
- School of Chemical, Biological and Materials Engineering
- School of Civil Engineering and Environmental Science
- School of Computer Science
- Program in Data Science and Analytics
- School of Electrical and Computer Engineering
- Department of Engineering
- Program in Engineering Physics
- School of Industrial and Systems Engineering
- Program in Telecommunications

Opportunities
GALLOGLY STUDENT AFFAIRS TEAM (GSAT)

Engineering Student Life
Engineering Student Life promotes students’ professional and leadership development by supporting a variety of co-curricular opportunities. These opportunities include technical and professional societies, affinity groups, service organizations, social organizations, competitive student teams and more.

Diversity and Inclusion
The Diversity and Inclusion Program is open to all students in the Gallogly College of Engineering and the Mewbourne College of Earth and Energy. The D&I program facilitates the outreach, recruitment, retention and overall success of underrepresented minorities and populations.

Diversity, by its very nature, is conducive to providing a wide range of solutions and ideas that serve broader populations of society. Thus, it is equally important that we build a diverse student population with students from different backgrounds, experiences, knowledge and understanding. It is critical that our engineering students are well prepared to solve complex problems and develop new solutions working collaboratively in diverse teams. The D&I program provides academic and financial support, and professional development through a first-year engineering course, tutoring, mentoring, AT&T Summer Bridge, employment assistance, alumni support and more. The D&I program supports our diverse engineering and science students such that they are well prepared for successful professional careers.

Women in Engineering
The GCoE proudly supports the advancement and achievement of women in engineering and sciences. Our goal is to increase the participation of women within the engineering and sciences profession through outreach and programs that ensure the success of our students academically, socially and professionally. The Gallogly College of Engineering reports just over 25% undergraduate women enrollment. The college serves to recruit, retain and mentor women in engineering, as well as to foster viable connections with industry.

Jerry Holmes Leadership Program for Engineers and Scientists
The Jerry Holmes Leadership Program for Engineers and Scientists (JHLP) provides leadership education for students in the Gallogly College of Engineering and the Mewbourne College of Earth and Energy. Through JHLP’s pillar-based approach, students enhance their capabilities across five domains: personal development, interpersonal relationship, management and teamwork, leadership, and intercultural competence. JHLP provides a variety of leadership development opportunities including Distinguished Speaker days, workshops, courses, and a biennial Leadership Symposium. Students have the option to further develop their leadership capabilities as Holmes Leadership Associates (HLAs). HLAs work with professional mentors to design a personal leadership development plan. They attend monthly topical meetings and other events where they hone their leadership skills, and they create real impact as leaders within the university and surrounding communities.

Engineering Student Competition Teams
The Gallogly College of Engineering supports a multitude of student organizations with the focus of competing in specific regional, national, and international engineering competitions. These teams give students a unique opportunity to work on interdisciplinary projects and apply their academic knowledge while learning hands-on skills that will help them in their future careers. Teams also work with faculty and staff on further developing their foundation of engineering and project management skills.

Competition team projects include building and designing planes, rockets, formula-one cars, off-road vehicles, steel bridges, concrete canoes, chemically-powered autonomous cars, and creating and programming robots.

International and Global Opportunities
The college’s IGO program facilitates study abroad, service learning, and international research opportunities for our engineering students. Through the college’s campus-wide collaborations, our students are able to take required curricular and engineering courses while engaging in transformational experiences abroad. The IGO staff guide students through the application process, as well as managing program costs by providing individualized budgets and information about multiple funding opportunities. Students are prepared for their international experience prior to departure through a series of information sessions. Currently the college has programs in Arezzo, Italy; Clermont-Ferrand, France; and Puebla, Mexico. Students may also participate in a variety of other study abroad programs offered by the University. IGO also assist students who wish to engage in research abroad. Some of our most recent engineering research internships have been in Portugal, Spain, Canada, Ireland, India, and Australia.

Deans Leadership Council
The Dean’s Leadership Council fosters connections to the community within the Gallogly College of Engineering through student-to-student interaction. These interactions are based on service, dedication, respect, encouragement and professionalism. The Council members are current engineering students with excellent academic credentials, and a desire to provide strong mentorship and leadership. DLC members serve as mentors to freshman and transfer engineering students, and student
recruiters for prospective students interested in engineering. DLC members are selected through an application process.

Honor Societies

In addition to university-wide honor societies and organizations, the Gallogly College of Engineering has a robust participation in engineering honor societies such as Tau Beta Pi, Pi Tau Sigma, Sigma Gamma Tau, Chi Epsilon, Eta Kappa Nu and Alpha Pi Mu.

Tau Beta Pi

The Tau Beta Pi honor society, which was founded at Lehigh University in June 1885, offers students of technical schools membership in an honorary association. Students who are qualified in any branch of engineering may become members. The annual election to the society, which is based upon scholarship, integrity, breadth of interest (both inside and outside of engineering), adaptability and unselfish activity, is limited to the upper one-fifth of the senior class and to the students who have grade averages within the upper one-eighth of the junior class. The government of the organization in each chapter is under the direction of the elected student officers and an advisory board consisting of four faculty members of Tau Beta Pi. Membership in Tau Beta Pi is one of the highest scholastic honors that an undergraduate engineering student can receive. The Oklahoma charter was granted in 1926.

K-12 OUTREACH

Engineering faculty and students are actively engaged in promoting Science, Technology, Engineering and Math in K-12 education. The Gallogly College of Engineering offers a variety of programs to encourage kids to get excited about STEM education.

SCHOLARSHIPS AND FINANCIAL AID INFORMATION

Future Students

To be considered for first-year scholarships from the Gallogly College of Engineering, you must apply for admissions to the University of Oklahoma by December 15th of each year. Scholarships are competitive for students demonstrating strong academic merit, leadership, community service, co-curricular activities, financial need, etc. Incoming students can learn more about additional scholarship opportunities through the Office of Admissions & Recruitment.

Current Students

All undergraduate and graduate engineering students can apply for scholarships through the Centralized Academic Scholarship Hub (CASH). The deadline is February 1st of each year.

Financial Aid

The FAFSA (or Free Application for Federal Student Aid) is the government-provided application for need-based funds to help pay for college. OU highly recommends completing the FAFSA regardless of family’s income.

CAREER GUIDANCE

Our mission is to provide engineering students with a strong foundation for success through responsive, supportive and meaningful academic and career guidance. Each semester, students are required to meet with both their College and Faculty Advisors in order to assist with their academic progression and address concerns related to career pathways, internships, graduate school, etc. Faculty with past and/or current corporate collaborations are excellent resources for our students, as are the college’s alumni, many of whom welcome connecting with students regarding career questions. During the first-year Engineering Orientation and the second-year Professional Development courses, students are introduced to the career planning process and the assistance available via the OU Career Services. These courses also introduce students to undergraduate research experience programs and graduate school. The college also hosts a Graduate School Fair for the undergraduate students. The Gallogly College of Engineering collaborates with the OU Career Services Office to host two annual Career Fairs for engineering students; one in September and the other in February. The September career fair is the largest with an average of 140 companies seeking to recruit our students. Many companies also commit to a regular presence on campus as speakers at student organizations’ regular meetings or “Tech Talks.”

The OU Career Services offers specialized services to students and alumni, that includes:

- Job search and interviewing skills
- Resume and cover letter writing
- Major specific career advice
- Internship and Job postings
- Information regarding Career Fairs and on-campus interviews

CO-OP PROGRAM

The Co-op Program offers a work-study experience that combines a sequence of academic study and engineering employment in industry or government. Participating in the Co-op Program allows the engineering student to gain first-hand experience in the application of academic studies to engineering problems.

Participation in the Co-op Program is optional and open to students enrolled full-time in a degree program administered by the Gallogly College of Engineering. Students who wish to participate in the Co-op Program must have completed all of the requirements of the first year of their degree program with a minimum 2.50 GPA. Students also must have the approval of the director of the school of their major. Employment in a Co-op position requires the approval of the participating company. Interested students should apply as soon as possible during their first three semesters on campus.

The time required to complete an engineering degree program as a Co-op student will be longer than the usual eight-semester program. (Caution: Major courses in several GCoE degree programs are sequential and offered only one time per year.) For further information and application forms, contact the Gallogly College of Engineering Undergraduate Advising Office.

INTERNSHIPS

The Gallogly College of Engineering encourages all students to seek an internship either with college faculty assisting with research or with industry. Both the college’s Undergraduate Advising office and the OU Career Services office work to facilitate this process.

WORK EXPERIENCE

Students may request to receive credit for internship or co-op experiences. Specific faculty oversee such enrollments and may require
the student to provide a final project report and presentation. The faculty of the student's program determine if the credits may apply towards degree completion, and if so, if the credits will apply as a professional or technical elective in the student's program. For more information, contact the college's Undergraduate Advising Office.

Courses

ENGR 1401 Dean's Leadership Council 1 Credit Hour
Prerequisite: must have submitted an application and be approved by the college. This course is required of all DLC mentors and lead mentors. The purpose of the Dean's Leadership Council is to engage with new students pursuing a degree in the Gallogly College of Engineering. DLC mentors provide support to assist students with the transition to college life at OU, increase student involvement in the engineering community, and increase academic student success. (F, Sp)

ENGR 1410 Freshman Engineering Orientation 0 Credit Hours
Prerequisite: declared major in engineering. All entering freshmen with a declared engineering major are required to enroll. One hour of this seminar a week is in a large group setting where all students meet and cover details on all engineering disciplines. Additional topics would be continuums of majors, success in the College of Engineering, success at the University of Oklahoma, study abroad programs, advising issues, graduate school opportunities, career planning, and information related to technical/honor societies and participation. A second hour a week is a required small group session with an upper-class mentor from the College of Engineering Dean's Leadership Council. This second hour will focus on basic enrollment and retention strategies such as adding and dropping classes and choosing electives in addition to a weekly topic area. (F)

ENGR 1411 Freshman Engineering Experience 1 Credit Hour
Prerequisite: declared major in Engineering or permission of instructor. Required of all entering freshmen with a declared Engineering major. Lecture hours cover a variety of topics including: majors and minors; career planning; advising; and extra-curricular activities. Students also work on multi-disciplinary engineering projects in smaller groups during the lab hour. (F)

ENGR 1510 Selected Topics 3 Credit Hours
0 to 3 hours. Selected topics on current or special topics relating to engineering to be structured for students in engineering and other areas. (F, Sp, Su)

ENGR 2002 Professional Development 2 Credit Hours
Prerequisite: ENGR 1410 or ENGR 1411, or ENGR 3511 or ENGR 3410 or concurrent enrollment; ENGL 1213 or EXPO 1213, and sophomore standing. Develop an understanding of engineering ethics, teamwork, leadership, and professional responsibility through the concepts of contemporary, social, and global issues. (F, Sp)

ENGR 2411 Applied Engineering Statics 1 Credit Hour
Prerequisites: Physics 2514 and Mathematics 2433 or concurrent enrollment in Mathematics 2433. Review of fundamentals of statics calculations and their applications to common engineering situations. (Sp)

ENGR 2431 Electrical Circuits 1 Credit Hour
Prerequisite: MATH 2423 or 2924; and PHYS 2524 or concurrent enrollment. Introduction to basic principles of electrical circuits. Topics include DC circuits analysis, DC transients, static electrical fields, static magnetic fields, capacitors, inductors, and filters. (F, Sp)

ENGR 2461 Thermodynamics 1 Credit Hour
Prerequisite: MATH 2433 or 2934; and PHYS 2524 or concurrent enrollment. Introduction to basic principles of thermodynamics. Topics include density, pressure, and temperature, the first law of thermodynamics for a system, the first law of thermodynamics for a control volume, the second law of thermodynamics, and psychometrics. (F)

ENGR 2531 Electrical Circuits II 1 Credit Hour
Prerequisite: ENGR 2431. Introduction to intermediate principles of electrical circuits. Topics include amplifiers, filters, signal conditioning, A/D and D/A conversion, and common digital and analog circuits. (Sp)

ENGR 2970 Special Topics/Seminar 1-3 Credit Hours
1 to 3 hours. Prerequisite: Permission of instructor. May be repeated; maximum credit nine hours. Special topics or seminar course for content not currently offered in regularly scheduled courses. May include library and/or laboratory research and field projects. (Irreg.)

ENGR 3051 Experiential Leadership 1 Credit Hour
Prerequisite: Instructor permission and enrollment in Engineering Leadership Undergraduate Certificate. Participatory course with formal, extended activity that provides opportunities for leadership development. Includes written proposal describing the activity; creation of a personal leadership development plan (PLDP); periodic reflections regarding leadership learning and development; and coaching and/or mentoring. The leadership development plan will align with the Leadership Capabilities espoused by the Jerry Holmes Leadership Program for Engineers and Scientists. (F, Sp)

ENGR 3401 Engineering Economics 1 Credit Hour
Prerequisite: MATH 1823 or 1914. Introduction to basic principles of engineering economics. Topics include value and interest, cash flow diagrams and patterns, equivalence of cash flow patterns, unusual cash flows and interest periods, evaluating alternatives (annual equivalent cost comparisons, present equivalent cost comparisons, incremental approach, rate of return comparisons, benefit/cost comparisons, MARR, replacement problems, always ignore the past, break-even analysis), income tax, depreciation, and inflation. (F, Sp)

ENGR 3410 Engineering Orientation for Transfer Students 0 Credit Hours
Prerequisite: Transfer students majoring in Civil Engineering, Environmental Science, Environmental Engineering, or Architectural Engineering majors. Sophomore standing or above. Required orientation course for majors in the School of Civil Engineering and Environmental Science. The lecture hours cover a variety of topics including: major and minors; career planning; advising; and extra-curricular activities. Students also work on multidisciplinary engineering projects. To be taken during the first semester of enrollment in the College of Engineering at OU. (F, Sp)

ENGR 3431 Electromechanical Systems 1 Credit Hour
Prerequisite: ENGR 2431. Introduction to basic principles of electromechanical systems. Topics include physical principles of sensing and actuation, types of sensors and actuators, and interfacing and communication protocols. (F, Sp)

ENGR 3440 Mentored Research Experience 3 Credit Hours
0 to 3 hours. Prerequisites: ENGL 1113 or equivalent, and permission of instructor. May be repeated; maximum credit 12 hours. For the inquisitive student to apply the scholarly processes of the discipline to a research or creative project under the mentorship of a faculty member. Student and instructor should complete an Undergraduate Research & Creative Projects (URCP) Mentoring Agreement and file it with the URCP office. Not for honors credit. (F, Sp, Su)
ENGR 3441  Fluid Mechanics  1 Credit Hour
Prerequisite: Mathematics 2433 or 2934; and Physics 2524 or concurrent enrollment. Introduction to basic principles of fluid mechanics. Topics include fluid properties, fluid statics, dimensionless parameters and similitude, control volume equations, open channel flow, and external flow. (Sp)

ENGR 3511  Engineering Orientation Experience for Transfer Students  1 Credit Hour
Prerequisite: sophomore standing. Required of all incoming transfer students with a declared major in Engineering. The lecture hours cover a variety of topics including: majors and minors; career planning; advising; and extra-curricular activities. Students also meet with mentors and work on multidisciplinary engineering projects. Also open to students with an interest in engineering. (F, Sp)

ENGR 3960  Honors Reading  1-3 Credit Hours
1 to 3 hours. Prerequisite: admission to Honors Program. May be repeated; maximum credit six hours. Consists of topics designated by the instructor in keeping with the student's major program. Cover materials not usually presented in the regular courses. (Sp)

ENGR 3970  Honors Seminar  1-3 Credit Hours
1 to 3 hours. Prerequisite: admission to Honors Program. May be repeated; maximum credit six hours. Projects covered will vary. Deal with concepts not usually presented in regular coursework. (Irreg.)

ENGR 3980  Honors Research  1-3 Credit Hours
1 to 3 hours. Prerequisite: admission to Honors Program. May be repeated; maximum credit six hours. Provides an opportunity for the gifted Honors candidate to work on a special project in the student's field. (F, Sp, Su)

ENGR 3990  Independent Study  1-3 Credit Hours
1 to 3 hours. Prerequisite: permission of instructor and junior standing. May be repeated once with change of content. Independent study may be arranged to study a subject not available through regular course offerings. (F, Sp, Su)

ENGR 4003  Engineering Practice  3 Credit Hours
Prerequisites: ENGR 2002 or 2003, junior or senior standing, and permission of the instructor. Focuses on real world application of the skills taught in major courses and the core course, professional development. Allows a student to earn credit toward degree requirements through the completion of an intense internship experience. A written report detailing the responsibilities and results of the experience is required upon completion along with an oral presentation. Other service experience learning may qualify. (F; Su)

ENGR G4013  Leadership and Management for Engineers  3 Credit Hours
Prerequisites: junior standing or senior standing; or graduate standing; or instructor permission. This course will help prepare students for leadership and management positions in a global culture. The course emphasizes team building attributes in a multi-cultural organization, how to build commitment among team members, and how to organize to compete in the global marketplace. Students will gain a better understanding of themselves and their personal and professional goals. (F; Sp)

ENGR G4023  Disruptive and Innovative Technology  Ideation  3 Credit Hours
Prerequisites: sophomore standing, junior standing, or senior standing; or graduate standing; at least one semester of calculus, a working knowledge of basic statistics, and departmental permission. Ideation is the process of conceiving or forming ideas. In the context of this class, the process of ideation will be investigated with regard to both disruptive and innovative commercial technologies. (F, Su)

ENGR 4051  Lincoln, Leadership & Innovation  1 Credit Hour
Prerequisite: Junior standing or instructor permission. Students will learn from the example of Lincoln’s leadership, his ability to be innovative and employ technology-driven solutions, and his methods of personal and professional development. Students will reflect on and develop their own personal leadership philosophy in response to Lincoln’s example. The course will provide students the opportunity to delve into an area of Lincoln’s leadership of personal interest. (Sp)

ENGR 4113  Science, Engineering, and Mathematics Educational Outreach for STEM Majors  3 Credit Hours
(Slashlisted with 5113) Prerequisite: junior or senior standing and permission of instructor. Designed for STEM majors interested in educational outreach at any age level, this course introduces the fundamentals of cognition, educational psychology and pedagogy, and shows how these topics relate to learning. Critical review and analysis of STEM education in light of best teaching practices, school cultural issues, gender issues, and ethnic cultural issues will be explored. Authentic, inquiry-based STEM lessons will be developed and taught in K-12 classrooms or similar education venues. Field site observations and interactions with educational professionals will be used to emphasize practical application of learning theory. No student may earn credit for both 4113 and 5113. (F)

ENGR G4510  Selected Topics  1-6 Credit Hours
1 to 6 hours. Prerequisite: upper-division or graduate standing. Selected topics on current or special topics relating to engineering. May be structured for students in other areas. (Sp)

ENGR G4513  Introduction to Sustainable Engineering  3 Credit Hours
Prerequisite: upper-division or graduate standing in the College of Engineering or permission of the instructor. An introduction to the concepts of sustainable development, sustainable engineering, global resource reserves, and global environmental concerns. The main focus of the class will be application of life cycle assessment to minimize the adverse environmental impacts of products (e.g., a pencil) or processes (e.g., wastewater treatment). Tools for life cycle assessment will include public domain software and SimaPro. (Sp)

ENGR 4960  Directed Readings  1-4 Credit Hours
1 to 4 hours. Prerequisite: good standing in University; permission of instructor and dean. May be repeated; maximum credit four hours. Designed for upper-division students who need opportunity to study a specific problem in greater depth than formal course content permits. (Irreg.)

ENGR 4970  Special Topics/Seminar  1-3 Credit Hours
1 to 3 hours. Prerequisite: Senior standing or permission of instructor. May be repeated; maximum credit nine hours. Special topics or seminar course for content not currently offered in regularly scheduled courses. May include library and/or laboratory research and field projects. (Irreg.)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 4990</td>
<td>Independent Study</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: Senior standing and permission of instructor. May be repeated; maximum credit nine hours. Contracted independent study for a topic not currently offered in regularly scheduled courses. Independent study may include library and/or laboratory research and field projects. (Irreg.)</td>
</tr>
<tr>
<td>ENGR 5113</td>
<td>Science, Engineering and Mathematics Outreach for STEM Majors</td>
<td>3</td>
<td>(Slashlisted with 4113) Prerequisite: graduate standing and permission of instructor. Designed for STEM majors interested in educational outreach at any age level, this course introduces the fundamentals of cognition, educational psychology and pedagogy, and shows how these topics relate to learning. Critical review and analysis of STEM education in light of best teaching practices, school cultural issues, gender issues, and ethnic cultural issues will be explored. Authentic, inquiry-based STEM lessons will be developed and taught in K-12 classrooms or similar education venues. Field site observations and interactions with educational professionals will be used to emphasize practical application of learning theory. No student may earn credit for both 4113 and 5113. (F)</td>
</tr>
<tr>
<td>ENGR 5120</td>
<td>Engineering Education Enquiry</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: Graduate standing or permission of instructor. May be repeated; maximum credit nine hours. Seminar course covering topics in engineering education research. (Irreg.)</td>
</tr>
<tr>
<td>ENGR 5900</td>
<td>Engineering Professional Practice</td>
<td>1-6</td>
<td>1-6 hours. Prerequisite: Graduate standing and departmental permission. May be repeated; maximum credit six hours. Participation in a professional experience with an approved project sponsor and topic. A written report detailing the responsibilities and results of the experience is required upon completion along with an oral presentation. (F, Sp, Su)</td>
</tr>
<tr>
<td>ENGR 5960</td>
<td>Directed Readings</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: graduate standing and permission of department. May be repeated; maximum credit twelve hours. Directed readings and/or literature reviews under the direction of a faculty member. (F, Sp, Su)</td>
</tr>
<tr>
<td>ENGR 5970</td>
<td>Special Topics/Seminar</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: Graduate standing or permission of instructor. May be repeated; maximum credit nine hours. Special topics or seminar course for content not currently offered in regularly scheduled courses. May include library and/or laboratory research and field projects. (Irreg.)</td>
</tr>
<tr>
<td>ENGR 5980</td>
<td>Research for Master's Thesis</td>
<td>2-9</td>
<td>Variable enrollment, two to nine hours; maximum credit applicable toward degree, four hours. (F, Sp, Su)</td>
</tr>
<tr>
<td>ENGR 5990</td>
<td>Independent Study</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: Graduate standing and permission of instructor. May be repeated; maximum credit nine hours. Contracted independent study for a topic not currently offered in regularly scheduled courses. Independent study may include library and/or laboratory research and field projects. (Irreg.)</td>
</tr>
<tr>
<td>ENGR 6960</td>
<td>Directed Readings</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: graduate standing or permission of instructor. May be repeated; maximum credit six hours. Directed readings and/or literature review under the direction of a faculty member. (Irreg.)</td>
</tr>
<tr>
<td>ENGR 6970</td>
<td>Special Topics/Seminar</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: graduate standing or permission of instructor. May be repeated; maximum credit 12 hours. Special topics or seminar course for content not currently offered in regularly scheduled courses. May include library and/or research and field projects. (Irreg.)</td>
</tr>
<tr>
<td>ENGR 6980</td>
<td>Research for Doctoral Dissertation</td>
<td>2-16</td>
<td>(F, Sp, Su)</td>
</tr>
<tr>
<td>ENGR 6990</td>
<td>Independent Study</td>
<td>1-3</td>
<td>1 to 3 hours. Prerequisite: Graduate standing and permission of instructor. May be repeated; maximum credit nine hours. Contracted independent study for a topic not currently offered in regularly scheduled courses. Independent study may include library and/or laboratory research and field projects. (Irreg.)</td>
</tr>
</tbody>
</table>